



# Gaseous detector chapter towards CEPC TDR

Huirong Qi and Linghui Wu

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# Gaseous detector chapter for CEPC TDR

- Preliminary contents of the gaseous track detector chapter in CEPC TDR
  - As one separate chapter – Gaseous trackers
  - Includes issues from physical requirements, selection, simulation, performance and cost.

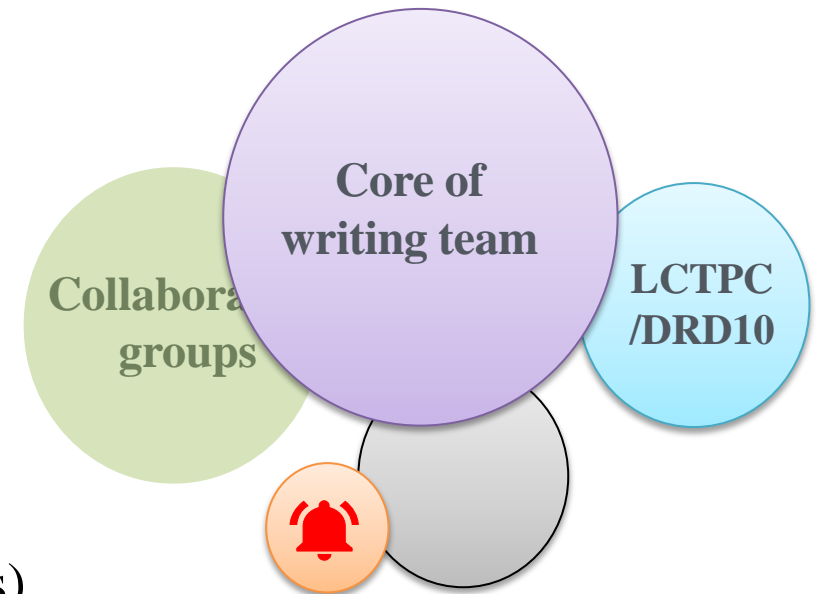
## Chapter 4 Gaseous trackers

4.1	Physics requirements and detection technology . . . . .
4.1.1	Physics requirements of Higgs and Tera-Z . . . . .
4.1.2	Technology options of the gaseous chamber . . . . .
4.1.3	Choice and the baseline main track detector . . . . .
4.2	Pixelated readout TPC tracker . . . . .
4.2.1	TPC detector and readout electronics . . . . .
4.2.2	Mechanical and cooling design . . . . .
4.2.3	Critical R&D . . . . .
4.3	Performance of TPC tracker . . . . .
4.3.1	Overall of simulation framework . . . . .
4.3.2	Spatial resolution and particle identification . . . . .
4.3.3	Potential for improving resolution . . . . .
4.4	Costs estimation . . . . .

<https://latex.ihep.ac.cn>

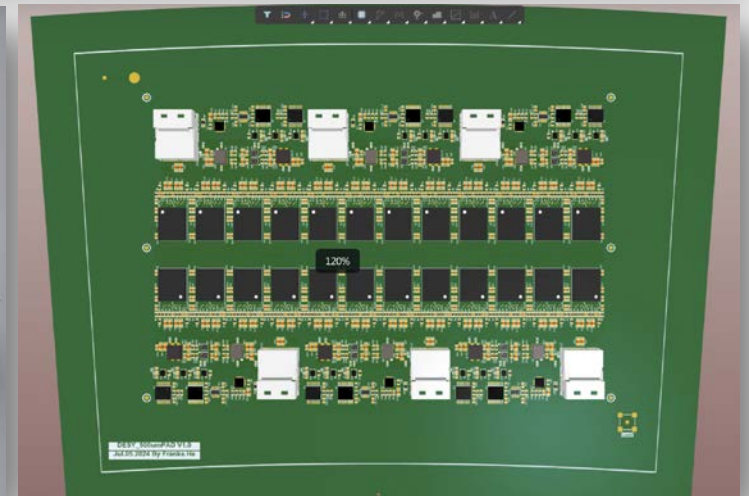
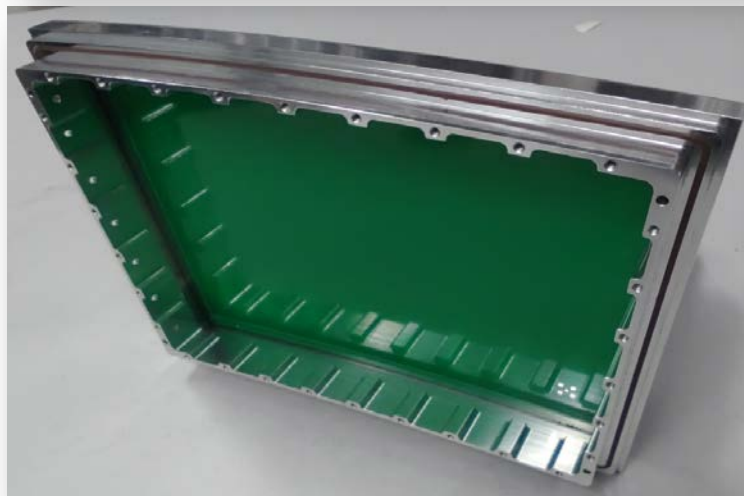
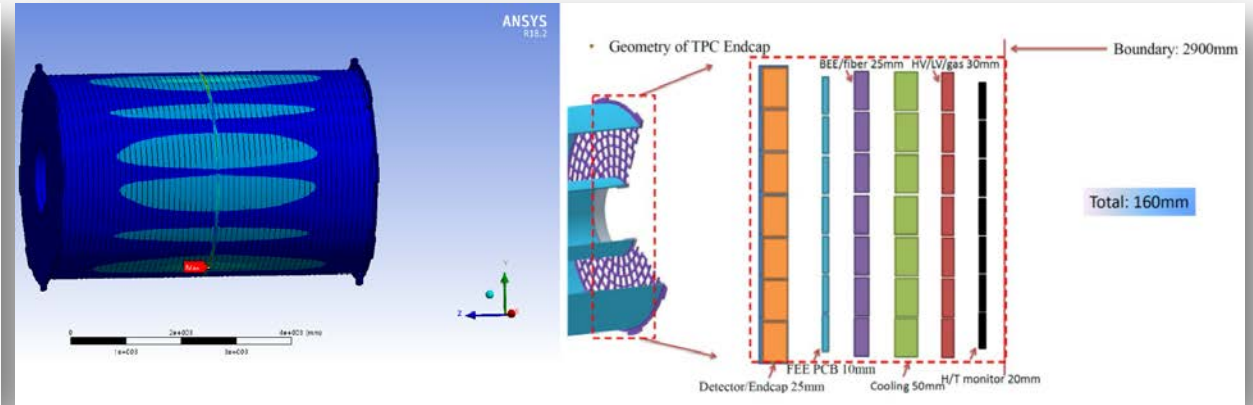
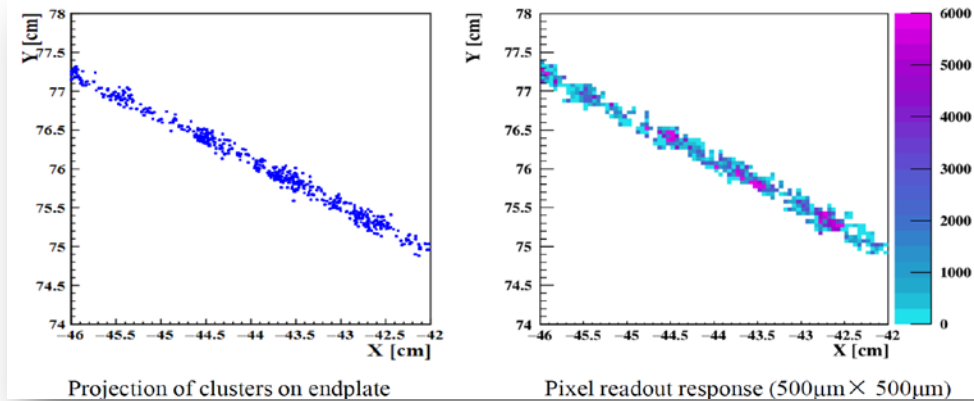
# Writing Team of gaseous detector part

- **Core of the writing team**
  - IHEP: Huirong Qi, Linghui Wu, Guang Zhao, Mingyi Dong, Yue Chang, Xin She, Jinxian Zhang, Junsong Zhang
  - Tsinghua: Zhi Deng, Canwen Liu, Guanghua Gong, Feng He, Jianmeng Dong, Yanxiao Yang
- **Collaboration groups of the writing team**
  - CIAE (原子能院): Xiaomei Li, Jing Zhou
  - Shandong University (山东大学): Chengguang Zhu
  - Nankai University (南开大学), Zhengzhou University (郑州大学) and Liaoning University (辽宁大学)
  - LCTPC collaboration and DRD1 collaboration
    - NIKHEF: Peter Kluit
    - CEA-Saclay: Paul Colas, Maxim Titov
    - DESY: Oliver, Ron Settle
- **Organization of team**
  - Regular weekly meeting (Domestic meetings mainly)
  - Indico + Online meeting + Minutes released
  - LCTPC collaboration bi-weekly meeting (International meetings)
  - DRD1 WP4 unscheduled meetings



# Design and assembled module of the beam test

- FEE, DAQ and BEE electronics collaboration are smooth and pushed quickly.
  - Two Aluminum backframes have been done.
- TPC with cluster counting and FEA calculation ongoing
  - Ultra-light material of the TPC barrel can be choose.



**Many thanks!**